

Amendments to the Claims

This listing will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Amended) A non-asphaltic underlayment comprising:

a glass fiber-based substrate in which a first surface thereof is directly adhered to a breathable thermoplastic film having a minimum thickness of 2 mils, the breathable thermoplastic film comprises a thermoplastic polyurethane blended with about 40 to 60% ethylene methacrylate polymer, wherein the ethylene methacrylate polymer acts as an adhesion improvement component that improves adhesion between the breathable thermoplastic film and the glass fiber-based substrate, said breathable thermoplastic film imparts water-resistance to the underlayment while maintaining breathability thereof, the breathable thermoplastic film having a minimum moisture vapor transmission rate of greater than about 3 perms.
2. (Previously Amended) The non-asphaltic underlayment of claim 1 further comprising a skid-resistance component blended into the breathable thermoplastic film, the skid-resistance component comprising at least 1-10% of ethyl-vinyl acetate or maleic anhydride grafted ethyl-vinyl acetate.
3. (Previously Amended) The non-asphaltic underlayment of claim 1 further comprising a second breathable thermoplastic film located on a second surface of the glass fiber-based substrate.
4. (Previously Amended) The non-asphaltic underlayment of claim 1 wherein the substrate is woven or non-woven.

5. (Previously Amended) The non-asphaltic underlayment of claim 4 wherein the substrate is a non-woven glass-fiber based substrate.

6. (Cancelled).

7. (Cancelled).

8. (Cancelled).

9. (Original) The non-asphaltic underlayment of claim 1 wherein the substrate has a thickness from about 5 to about 60 mils.

10. (Cancelled)

11. (Cancelled)

12. (Previously Amended) The non-asphaltic underlayment of claim 1 wherein the breathable thermoplastic film has a thickness of about 2 to about 10 mils.

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Previously Amended) The non-asphaltic underlayment of claim 1 further comprising at least one of a water repellent material, an algacide, an herbicide, an antifungal material, a surface friction agent, a flame retardant, or a coloring dye.

17. (Original) The non-asphaltic underlayment of claim 1 wherein the underlayment is a base sheet of a peel and stick roofing product.

18. (Previously Amended) A non-asphaltic underlayment comprising a substantially non-water-resistant polypropylene substrate in which at least a top surface thereof is directly adhered to a polyurethane based thermoplastic film, said polyurethane based thermoplastic film imparts water-resistance to the underlayment while maintaining breathability of the underlayment, the breathable thermoplastic film having a minimum moisture vapor transmission rate of 3 perms or greater the polyurethane based thermoplastic film being blended with about 40 to 60% ethylene methacrylate polymer to improve adhesion between the polyurethane based thermoplastic film and the substantially non-water-resistant polypropylene substrate.

19. (Withdrawn) A method of manufacturing a non-asphaltic underlayment comprising applying a breathable thermoplastic film selected from the group consisting of a polyurethane based thermoplastic film, an ethylene-methacrylate or ethylene acrylic acid based thermoplastic film, a micro-porous polyolefinic thermoplastic film, a micro-porous polyester thermoplastic film and combinations or multilayers thereof to at least one surface layer of a substrate, said breathable thermoplastic film imparts water-resistance to the substrate while maintaining the breathability of the substrate.

20. (Withdrawn) The method of claim 19 wherein the applying includes die extrusion, air spraying, dip coating, knife coating, roll coating or a film application.

21. (Withdrawn) The method of claim 19 wherein the applying comprises lamination.

22. (Withdrawn) The method of claim 19 wherein the applying comprises chemical bonding, mechanical bonding, thermal bonding or any combination thereof.

23. (Withdrawn) A roofing system comprising a non-asphaltic, breathable underlayment and one or more shingles laid-up on an uppermost layer of the underlayment, said underlayment comprising a woven or non-woven substrate in which at least one surface thereof comprises a breathable thermoplastic film selected from the group consisting of a polyurethane based thermoplastic film, an ethylene-methacrylate or ethylene acrylic acid based thermoplastic film, a micro-porous polyolefinic thermoplastic film, a micro-porous polyester thermoplastic film and combinations or multilayers thereof disposed thereon, said breathable thermoplastic film imparts water-resistance to the substrate without negatively impacting breathability of the substrate.

24. (Withdrawn) A roofing system comprising a non-asphaltic, breathable underlayment and one or more shingles laid-up on an uppermost layer of the underlayment, said underlayment comprising a woven or non-woven substrate in which at least one surface thereof comprises a polyurethane based thermoplastic film, disposed thereon, said polyurethane thermoplastic film imparts water-resistance to the substrate while maintaining breathability as defined in ASTM E96 standard.

25. (Withdrawn) The roofing system of claim 24 wherein the one or more shingles include asphalt-containing single or multi-ply shingles.

26. (Withdrawn) A breathable and yet water-resistant coating selected from the group consisting of a polyurethane based thermoplastic film, an ethylene-methacrylate or

ethylene acrylic acid based thermoplastic film, a micro-porous polyolefinic thermoplastic film, a micro-porous polyester thermoplastic film and combinations or multilayers thereof over a woven or a non-woven substrate.

27. (Withdrawn) The breathable and yet water-resistant coating of claim 26 wherein said underlayment forms a seal around any penetrations.

28. (Withdrawn) The breathable and yet water-resistant coating of claim 27 wherein said penetrations are the result of securing means.

29. (Withdrawn) The breathable and yet water-resistant coating of claim 28 wherein said securing means comprise nails, staples or combinations thereof.

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Previously Presented) The non-asphaltic underlayment of claim 2 wherein the skid-resistance component is a surface friction agent.

37. (Previously Presented) A non-asphaltic underlayment comprising:

a breathable thermoplastic film comprising a thermoplastic polyurethane blended with about 40 to 60% ethylene methacrylate polymer, the ethylene methacrylate polymer acting as an adhesion improvement component; and

a substrate, the substrate having a thickness of about 6 to 60 mils, the substrate being air sprayed with more than two mils but less than 10 mils of the breathable thermoplastic film, wherein the breathable thermoplastic film imparts water-resistance to the underlayment while maintaining breathability thereof as defined in ASTM E96 standard.

38. (Previously Presented) The non-asphaltic underlayment of claim 1 further comprising a skid-resistance component blended into the breathable thermoplastic film, the skid-resistance component comprising at least 1-10% of ethyl-vinyl acetate or malefic anhydride grafted ethyl-vinyl acetate.

39. (Previously Presented) The non-asphaltic underlayment of claim 1 further comprising a second breathable thermoplastic film air sprayed onto a second surface of the substrate.

40. (Previously Presented) The non-asphaltic underlayment of claim 1 wherein the substrate is nonwoven polypropylene.

41. (Previously Presented) The non-asphaltic underlayment of claim 1 further comprising a water repellent material, an algaecide, an herbicide, an antifungal material, a surface friction agent, a flame retardant, a coloring dye and combinations thereof.

42. (Previously Presented) The non-asphaltic underlayment of claim 1 wherein the underlayment is a base sheet of a peel and stick roofing product.